UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,405	12/11/2003	Sung-Ik Park	51876P439	1181

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EXAMINER
TAYONG, HELENE E

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 May 2008_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,3-6 and 8-10_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1,3-6 and 8-10_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _11 December 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____ .
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the amendment filed on 5/20/08.

2.   Applicant's request for reconsideration of the finality of the rejection of the last

Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claims 1, 3-6 and 8-10 are pending in this application and have been considered below.

Response to Arguments

3.   Applicant's arguments with respect to claims 1, 3-6, 8-10 rejected under 35

U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0140867

filed by Weiss (hereinafter "Weiss") in view of U.S. Patent No. 6744822 issued to

Gaddam et al (hereinafter "Gaddam") have been considered but are moot in view of the

new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 3-6, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Weiss (US 20020140867 see IDS) in view of Karaoguz (US 7315579) and further

in view of Gaddam et al (US 6744822).

        (1) with regards to claim 1;

Weiss in (figs. 1 and 5) discloses a terrestrial digital broadcasting system (pg.1, [0001], lines 2-5), comprising:

a broadcasting station (10) for multiplexing video, voice and additional signals (11) into transport stream (TS) (12) and transmitting the TS (12) to the transmitting stations (20) (pg. 5, [0076]); and

a transmitting stations (17) for receiving the TS (12) and broadcasting the TS (12) to receiving stations (21) through a single frequency network (20) (pg. 5, [0076]), wherein the broadcasting station (10) includes:

a transmission synchronization means (16) for inserting a field synchronization header to the TS in a predetermined data field period N, and wherein the transmitting stations include (fig. 5, 16 and pg.4, [0075], lines 3-6 , pg. 9, [0106], lines 7-14):

a transmission synchronization detecting means (fig. 6, 51) for synchronizing the TS transmitted from the broadcasting station based on the field synchronization header (pg.5, [0077]);and

a trellis encoding means (fig. 6, 36 and fig. 12) for generating initialization symbols of a predetermined length in a predetermined data field period M and synchronizing the TS outputted to the receiving stations (pg.5, [0078] and page 11, [0119]-[0120]).

Weiss discloses trellis encoding means (fig. 6, 36 and fig. 12, pg. 11, [0119]-[0120]), a memory (31) and a precoder (36), but Weiss does not disclose wherein the trellis encoding means includes:

(a) a first switching unit

(b) initializing output values of a trellis coded modulation (TCM) encoder and a memory of the TCM encoder performing switching to input values stored in the memory of the TCM encoder instead of input signals to the TCM encoder every M period ; and

(c) a second switching unit

(d) initializing output values of a precoder and a memory of the precoder by performing switching to values stored in the memory of the precoder instead of input signals to the precoder every M period.

(i) with regards to items (a) and (c) above;

However, Karaoguz in the same endeavor, TCM encoder discloses in (fig.16) a first switch (145) and a second switch (143) that takes in input data Dn1 and Dn0 and also some feed back inputs (col. 10, lines 39-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the switchs of Karaoguz in the encoder of Weiss in order to reduce the effects of channel imperfections, noise, and distortion in high speed communication systems (col. 1, lines 37-40).

(ii) with regards to items (b) and (d) above;

However, Gaddam et al in the same endeavor (Trellis encoder) discloses in (fig.3, 100) an encoder that consists of a precoder 110, 115 for encoding x1, and a 1/2 rate feedback convolutional encoder 120, 122, 125 for encoding input data x2, and produces three output bit. (col. 1, lines 26-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the system of Gaddam et al in the encoder of Weiss

as modified by Karaoguz in order to switch initializing output values of a trellis coded

modulation (TCM) encoder and a memory of the TCM encoder performing switching to

input values stored in the memory of the TCM encoder instead of input signals to the

TCM encoder every M period and initializing output values of a precoder and a memory

of the precoder by performing switching to values stored in the memory of the precoder

instead of input signals to the precoder every M period. The motivation to incorporate

the system of Gaddam et al in the encoder of Weiss as modified by Karaoguz would be

for improving bit-error-rate and higher-reliability bit-stream transmission.

    (2) with regards to claim 3;

Weiss further discloses wherein the field synchronization header is acquired by

reversing a first segment header of data fields of an N period on a bit basis (pg. 5,

[0077], lines 18-22 and pg.6, [0086], lines16-21).

    (3) with regards to claim 4;

Weiss further discloses wherein the transmission synchronization detecting

means recognizes that valid TS is being received, if a field synchronization header of a

value is detected in the first segment header and the value of is detected in the

segment headers of the other data fields (fig. 11,84, pg. 10, [0112], lines 1-18 and pg.

11, [0116], lines 12-16).

    (4) with regards to claim 5;

Weiss further discloses wherein the N value is adjusted based on the

communication channel environment between the broadcasting station and the

transmitting stations, and the M value is adjusted based on the communication channel

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environment between the broadcasting station and the transmitting stations (pg.1,

[0003] - [0004] and pg.2, [0012]).

(5) with regards to claim 6;

Weiss in (figs. 1 and 5) discloses a terrestrial digital broadcasting method using a

single frequency network (pg.1, [0001], lines 2-5), comprising the steps of:

a) inserting a field synchronization header to transport stream (TS) transmitted to

a plurality of transmitting stations in a predetermined data field period N in a

broadcasting station (fig. 5, 16 and pg.4, [0075], lines 3-6 , pg. 9, [0106], lines 7-14);

b) detecting (fig. 6, 51) the field synchronization header and synchronizing

starting points of the TS inputted to each transmitting station in the transmitting stations

(page 5, [0077]);

c) synchronizing the TS outputted to receiving stations by generating initialization

symbols of a predetermined length every predetermined data field period M with respect

to the inputted signal (fig. 6, 36 and col. 5, [0078]),

d) broadcasting the synchronized TS (fig. 1 and page 5, [0077]) to the receiving

stations(fig. 2, 25).

Weiss discloses trellis encoding means (fig. 6, 36 and fig. 12, pg. 11, [0119]-

[0120]), a memory (31) and a precoder (36), but Weiss does not disclose

(a) a first switching unit

(b) initializing output values of a trellis coded modulation (TCM) encoder and a

memory of the TCM encoder performing switching to input values stored in the memory

of the TCM encoder instead of input signals to the TCM encoder every M period; and

(c) a second switching unit

(d) initializing output values of a precoder and a memory of the precoder by

performing switching to values stored in the memory of the precoder instead of input

signals to the precoder every M period.

(i) with regards to items (a) and (c) above;

However, Karaoguz in the same endeavor, TCM encoder discloses in (fig.16) a

first switch (145) and a second switch (143) that takes in input data Dn1 and Dn0 and

also some feed back inputs (col. 10, lines 39-66).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate the switchs of Karaoguz in the encoder of Weiss in

order to reduce the effects of channel imperfections, noise, and distortion in high speed

communication systems (col. 1, lines 37-40).

(ii) with regards to items (b) and (d) above;

However, Gaddam et al in the same endeavor (Trellis encoder) discloses in

(fig.3, 100) an encoder that consists of a precoder 110, 115 for encoding x1, and a 1/2

rate feedback convolutional encoder 120, 122, 125 for encoding input data x2, and

produces three output bit. (col. 1, lines 26-65).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate the system of Gaddam et al in the encoder of Weiss

as modified by Karaoguz in order to switch initializing output values of a trellis coded

modulation (TCM) encoder and a memory of the TCM encoder performing switching to

input values stored in the memory of the TCM encoder instead of input signals to the

TCM encoder every M period and initializing output values of a precoder and a memory

of the precoder by performing switching to values stored in the memory of the precoder

instead of input signals to the precoder every M period. The motivation to incorporate

the system of Gaddam et al in the encoder of Weiss as modified by Karaoguz would be

for improving bit-error-rate and higher-reliability bit-stream transmission.

(6) with regards to claim 8;

Weiss further discloses wherein the field synchronization header is acquired by

reversing a first segment header of data fields of an N period on a bit basis (pg. 5,

[0077], lines 18-22] and pg.6, [0086], lines16-21).

(7) with regards to claim 9;

Weiss further discloses wherein the transmission synchronization detecting

means recognizes that valid TS is being received, if a field synchronization header of a

value is detected in the first segment header and the value of is detected in the

segment headers of the other data fields (fig. 11,84, pg. 10, [0112], lines 1-18 and pg.

11, [0116], lines 12-16).

(8) with regards to claim10;

Weiss further discloses wherein the N value is adjusted based on the

communication channel environment between the broadcasting station and the

transmitting stations, and the M value is adjusted based on the communication channel

environment between the broadcasting station and the transmitting stations (pg.1,

[0003] - [0004] and pg.2, [0012]).

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Kwak (US 5875001) discloses HDTV receiver.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to HELENE TAYONG whose telephone number is

(571)270-1675. The examiner can normally be reached on Monday-Friday 8:00 am to

5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Liu Shuwang can be reached on 571-272-3036. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helene Tayong/
Examiner, Art Unit 2611

June 4, 2008
/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611